

WHAT IS CLAIMED IS:

1. A method comprising:  
transmitting a defined beam of eyesafe laser energy;  
5 receiving reflected energy from said beam; and  
analyzing information in said received energy so as  
to detect the presence of a moving projectile.

2. A method according to Claim 1, including  
10 configuring said beam to have an azimuth angle and an  
elevation angle.

3. A method according to Claim 2, including  
selecting said azimuth angle to be 360°.

15 4. A method according to Claim 3, including  
selecting said elevation angle to be approximately 10°.

5. A method according to Claim 1, wherein said  
20 receiving includes directing said reflected energy onto a  
detector having a two-dimensional array of detector  
elements, each said detector element receiving reflected  
energy from a respective different direction.

25 6. A method according to Claim 1, wherein said  
analyzing includes detecting a Doppler shift in said  
received energy.

30 7. A method according to Claim 6, wherein said  
receiving includes directing said reflected energy onto a  
detector having a two-dimensional array of detector

elements, each said element receiving reflected energy from a respective different direction.

5        8.    A method according to Claim 7, wherein said receiving includes directing onto said detector a reference beam, so that energy from said defined beam mixes with energy from said reference beam in each said detector element to produce sum and difference frequencies.

10

      9.    A method according to Claim 7, wherein said analyzing includes supplying an output signal from each said detector element to a plurality of circuit portions which each perform at least one of filtering and fast  
15    Fourier transformation.

20

      10.   A method according to Claim 9, wherein said transmitting includes configuring said defined beam to include chirp modulation.

      11.   A method according to Claim 9, wherein said transmitting includes configuring said defined beam to be modulated with a single frequency.

25

      12.   A method according to Claim 9, including selecting said reference beam to be substantially equivalent to said defined beam.

13. An apparatus comprising:

a transmitter portion which transmits a defined beam of eyesafe laser energy;

5 a receiver portion which receives reflected energy from said beam; and

a further portion which analyzes information in said received energy so as to detect the presence of a moving projectile.

10

14. An apparatus according to Claim 13, wherein said beam has an azimuth angle and an elevation angle.

15 15. An apparatus according to Claim 14, wherein said azimuth angle is 360°.

16. An apparatus according to Claim 15, wherein said elevation angle is approximately 10°.

20 17. An apparatus according to Claim 13, wherein said receiver portion includes a detector having a two-dimensional array of detector elements, and structure for directing said reflected energy onto said detector, each said detector element receiving reflected energy from a  
25 respective different direction.

18. An apparatus according to Claim 13, wherein said further portion includes circuitry which can detect a Doppler shift in said received energy.

30

19. An apparatus according to Claim 18, wherein said receiver portion includes a detector having a two-

dimensional array of detector elements, and structure for directing said reflected energy onto said detector, each said detector element receiving reflected energy from a respective different direction.

5

20. An apparatus according to Claim 19, wherein said receiver includes structure for directing onto said detector a reference beam, energy from said defined beam mixing with energy from said reference beam in each said  
10 detector element to produce sum and difference frequencies.

21. An apparatus according to Claim 19, wherein said circuitry includes a plurality of circuit portions  
15 which each perform at least one of filtering and fast Fourier transformation of an output signal from one of said detector elements.

22. An apparatus according to Claim 21, wherein  
20 said defined beam includes chirp modulation.

23. An apparatus according to Claim 21, wherein said defined beam is modulated with a single frequency.

25 24. An apparatus according to Claim 21, wherein said reference beam is substantially equivalent to said defined beam.